PROTOCOLS

The following 26 pages of the Guide for Aviation Medical Examiners lists the Disease Protocols, and course of action that should be taken by the Examiner as defined by aeromedical decision considerations.

LAST UPDATE: July 31, 2005

PROTOCOL FOR ANTIHISTAMINE

In the case of severe allergies, the Examiner should deny or defer certification and provide a report to the Aerospace Medical Certification Division, AAM-300, that details the period and duration of symptoms and the nature and dosage of drugs used for treatment and/or prevention.

PROTOCOL FOR CARDIOVASCULAR EVALUATION

A current cardiovascular evaluation must include:

- An assessment of personal and family medical history
- Clinical cardiac and general physical examination
- An assessment and statement regarding the applicant's medications, functional capacity, modifiable cardiovascular risk factors
- Motivation for any necessary change
- Prognosis for incapacitation
- Blood chemistries (fasting blood sugar, current blood lipid profile to include total cholesterol, HDL, LDL, and triglycerides) performed within last 90 days

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PROTOCOL FOR EVALUATION OF CORONARY HEART DISEASE

Myocardial infarction, angina pectoris, or other evidence of coronary heart disease is covered in this protocol. Reports and test results relating to the diagnosis in accordance with the attached protocol must be obtained and forwarded to the AMCD.

A. Requirements are for consideration for any class of airman medical certification.

1. A 6-month recovery period must elapse after the event (angina, infarction, bypass surgery, angioplasty, or stenting) before consideration can be given for medical certification.

2. Hospital admission summary (history and physical), coronary catheterization report, and operative report regarding all cardiac events and procedures.

3. A current cardiovascular evaluation must include an assessment of personal and family medical history; a clinical cardiac and general physical examination; an assessment and statement regarding the applicant's medications, functional capacity, modifiable cardiovascular risk factors, motivation for any necessary change, prognosis for incapacitation; and blood chemistries (fasting blood sugar, current blood lipid profile to include total cholesterol, HDL, LDL, and triglycerides).

4. A maximal ECG treadmill stress test must be performed no sooner than 6-months post event. All stress testing should achieve 100 percent of maximal predicted heart rate unless medically contraindicated or prevented either by symptoms, conditioning, or concurrent use of medication, such as: B-blockers, calcium channel blockers (spec. diltiazem or verapamil), and/or digitalis preparations. With the consent of the attending physician, these medications should be discontinued for at least 48 hours prior to testing in order to attain maximal stress.

The blood pressure/pulse recordings at various stages and actual ECG tracings must be submitted. Tracings must include a rhythm strip, a full 12-lead ECG recorded at rest (supine and standing) and during hyperventilation while standing, one or more times during each stage of exercise, at the end of each stage, at peak exercise, and every minute during recovery for at least 5 minutes or until the tracings return to baseline level. The worksheet and interpretive report must be submitted. Computer-generated, sample cycle ECG tracings are unacceptable in lieu of the complete tracings.

A SPECT myocardial perfusion exercise stress test using technetium agents and/or thallium may be required for consideration for any class if clinically indicated or the exercise stress test is abnormal by any of the usual parameters. The interpretive report and all SPECT images, preferably in black and white, must be submitted.

> NOTE: If cardiac catheterization and/or coronary angiography have been performed, all reports and the actual films (if films are requested) must be submitted for review. Copies should be made of all films as a safeguard against loss. Films should be labeled with the name of the pilot and a return address.

B. Additional requirements for first or unlimited* second-class medical certification. The following should be accomplished no sooner than 6-months post event:

1. Post-event coronary angiography. The application may be considered without post-event angiography but certification for first- and unlimited second-class is unlikely without it.

2. A maximal thallium exercise stress test (See A. 4).

3. FAA Form 8500-20, Medical Exemption Petition (Operational Questionnaire). The applicant should indicate if a lower class medical certificate is acceptable in the event ineligible for class sought.

C. Certification. Applicants found qualified for an airman medical certificate will be required to provide periodic follow-up cardiovascular evaluations including maximal stress testing. Additional diagnostic testing modalities, including radionuclide studies, may be required if indicated.

No consideration will be given for an Authorization until all the required data have been received. The use of the applicant's full name, date of birth, and social security number on all correspondence and reports will aid the agency in locating the proper file.

It is the responsibility of each applicant to provide the medical information required to determine his/her eligibility for airman medical certification.

In order to expedite processing, it is suggested that the information be sent in ONE MAILING, when possible, to:

Medical Appeals Section, AAM-313 OR
Aerospace Medical Certification Division
Federal Aviation Administration
Post Office Box 26080
Oklahoma City OK 73125-9914

Medical Appeals Section, AAM-313
Aerospace Medical Certification Division
Federal Aviation Administration
6700 S MacArthur Blvd., Room B-13
Oklahoma City OK 73169

*Limited second-class medical certificate refers to a second-class certificate with a functional limitation such as, "Not Valid for Carrying Passengers for Compensation or Hire", "Not Valid for Pilot in Command", "Valid Only When Serving as a Pilot Member of a Fully Qualified Two-Pilot Crew", "Limited to Flight Engineer Duties Only", etc.

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PROTOCOL FOR CONDUCTIVE KERATOPLASTY

Conductive Keratoplasty (CK) is acceptable for aeromedical certification as a refractive error correction method for review by the FAA.

The following criteria are necessary for initial certification:

- The airman is not qualified for six months post procedure
- The airman must provide all medical records related to the procedure
- A current status report by the surgical eye specialist with special note regarding complications of the procedure or the acquired monocularity, or vision complaints by the airman
- A current FAA Form 8500-7, Report of Eye Evaluation
- A medical flight test may be necessary (consult with the FAA)
- Annual followups by the surgical eye specialist

PROTOCOL FOR HISTORY OF INSULIN-TREATED DIABETES MELLITUS - TYPE I and TYPE II

The FAA has established a policy that permits the special issuance medical certification of insulin-treated applicants for third-class medical certification. Consideration will be given only to those individuals who have been clinically stable on their current treatment regimen for a period of 6 months or more. Consideration is not being given for first- or second-class certification. Individuals certificated under this policy will be required to provide substantial documentation regarding their history of treatment, accidents related to their disease, and current medical status. If certificated, they will be required to adhere to stringent monitoring requirements and are prohibited from operating aircraft outside the United States. The following is a summary of the evaluation protocol and an outline of the conditions that the FAA will apply:

A. Initial Certification

1. The applicant must have had no recurrent (two or more) episodes of hypoglycemia in the past 5 years and none in the preceding 1 year which resulted in loss of consciousness, seizure, impaired cognitive function or requiring intervention by another party, or occurring without warning (hypoglycemia unawareness).

2. The applicant will be required to provide copies of all medical records as well as accident and incident records pertinent to their history of diabetes.

3. A report of a complete medical examination preferably by a physician who specializes in the treatment of diabetes will be required. The report must include, as a minimum:

a. Two measurements of glycosylated hemoglobin (total A_1 or A_{1c} concentration and the laboratory reference range), separated by at least 90 days. The most recent measurement submitted must be no more than 90 days old.

b. Specific reference to the applicant's insulin dosages and diet.

c. Specific reference to the presence or absence of cerebrovascular, cardiovascular, or peripheral vascular disease or neuropathy.

d. Confirmation by an eye specialist of the absence of clinically significant eye disease.

e. Verification that the applicant has been educated in diabetes and its control and understands the actions that should be taken if complications, especially hypoglycemia, should arise. The examining physician must also verify that the applicant has the ability and willingness to properly monitor and manage his or her diabetes.

f. If the applicant is age 40 or older, a report, with ECG tracings, of a maximal graded exercise stress test.

g. The applicant must submit a statement from his/her treating physician, Examiner, or other knowledgeable person attesting to the applicant's dexterity and ability to determine blood glucose levels using a recording glucometer.

NOTE: Student pilots may wish to ensure they are eligible for medical certification prior to beginning or resuming flight instruction or training. In order to serve as a pilot in command, you must have a valid medical certificate for the type of operation performed.

B. Subsequent Medical Certification

1. For documentation of diabetes management, the applicant will be required to carry and use a whole blood glucose measuring device with memory and must report to the FAA immediately any hypoglycemic incidents, any involvement in accidents resulting in serious injury (whether or not related to hypoglycemia), and any evidence of loss of control of diabetes, change in treatment regimen, or significant diabetic complications. With any of these occurrences, the individual must cease flying until cleared by the FAA.

2. At 3-month intervals, the airman must be evaluated by the treating physician. This evaluation must include a general physical examination, review of the interval medical history, and the results of a test for glycosylated hemoglobin concentration. The physician must review the record of the airman’s daily blood glucose measurements and comment on the results. The results of these quarterly evaluations must be accumulated and submitted annually unless there has been a change. (See No. 1 above. If there has been a change the individual must report the change(s) to the FAA and wait for an eligibility letter before resuming flight duties).

3. On an annual basis, the reports from the examining physician must include confirmation by an eye specialist of the absence of significant eye disease.

4. At the first examination after age 40 and at 5-year intervals, the report, with ECG tracings, of a maximal graded exercise stress test must be included in consideration of continued medical certification.

C. Monitoring And Actions Required During Flight Operations

To ensure safe flight, the insulin using diabetic airman must carry during flight a recording glucometer, adequate supplies to obtain blood samples, and an amount of rapidly absorbable glucose, in 10 gm portions, appropriate to the planned duration of the flight. The following actions shall be taken in connection with flight operations:

1. One-half hour prior to flight, the airman must measure the blood glucose concentration. If it is less than 100 mg/dl the individual must ingest an appropriate (not less than 10 gm) glucose snack and measure the glucose concentration one-half hour later. If the concentration is within 100 -- 300 mg/dl, flight operations may be undertaken. If less than 100, the process must be repeated; if over 300, the flight must be canceled.

2. One hour into the flight, at each successive hour of flight, and within one-half hour prior to landing, the airman must measure his or her blood glucose concentration. If the concentration is less than 100 mg/dl, a 20 gm glucose snack shall be ingested. If the concentration is 100 --300 mg/dl, no action is required. If the concentration is greater that 300 mg/dl, the airman must land at the nearest suitable airport and may not resume flight until the glucose concentration can be maintained in the 100 -- 300 mg/dl range. In respect to determining blood glucose concentrations during flight, the airman must use judgment in deciding whether measuring concentrations or operational demands of the environment (e.g., adverse weather, etc.) should take priority. In cases where it is decided that operational demands take priority, the airman must ingest a 10 gm glucose snack and measure his or her blood glucose level 1 hour later. If measurement is not practical at that time, the airman must ingest a 20 gm glucose snack and land at the nearest suitable airport so that a determination of the blood glucose concentration may be made.

PROTOCOL FOR HISTORY OF ORAL DIABETES MEDICATION(S) DIABETES MELLITUS – TYPE II

Applicants with a diagnosis of diabetes mellitus controlled by use of an oral medication may be considered by the FAA for Special Issuance of a Medical Certificate. Following initiation of oral medication treatment, a 60-day period must elapse prior to certification to assure stabilization, adequate control, and the absence of side effects or complications from the medication.

Initial certification decisions shall not be made by the Examiner. These cases will be deferred to the AMCD. Examiners may be delegated authority to make subsequent certification decisions, subject to AMCD review and consideration.

The initial determination of eligibility will be made on the basis of a report from the treating physician. For favorable consideration, the report must contain a statement regarding the medication used, dosage, the absence or presence of side effects and clinically significant hypoglycemic episodes, and an indication of satisfactory control of the diabetes. The results of an A1C hemoglobin determination within the past 30 days must be included. Note must also be made of the absence or presence of cardiovascular, neurological, renal, and/or ophthalmological disease. The presence of one or more of these associated diseases will not be, per se, disqualifying, but the disease(s) must be carefully evaluated to determine any added risk to aviation safety.

Recertification decisions will also be made on the basis of reports from the treating physician. The contents of the report must contain the same information required for initial certification and specifically reference the presence or absence of satisfactory control, any change in the dosage or type of oral hypoglycemic drug, and the presence or absence of complications or side effects from the medication. In the event of an adverse change in the applicant's diabetic status (poor control or complications or side effects from the medication), or the appearance of an associated systemic disease, an Examiner who has been given the authority to issue a certificate pending further review and consideration by the AMCD must defer certification to the AMCD.

If, upon further review, it is decided that recertification is appropriate, the Examiner may again be given the authority to issue certificates (subject to AMCD review and consideration) based on data provided by the treating physician, including such information as may be required to assess the associated medical condition(s).

As a minimum, followup evaluations by the treating physician of the applicant's diabetes status are required annually for all classes.

Airmen who are diabetics should be counseled by Examiners regarding the significance of their disease and its possible complications. They should be informed of the potential for hypoglycemic reactions and cautioned to remain under close medical surveillance by their treating physicians. They should also be advised that should their oral hypoglycemic be changed or dosages modified, they should not perform airman duties until the treating physician has concluded that their conditions are under control and present no hazard to aviation safety. Airmen who use insulin for the treatment of their diabetics, may only be considered for special issuance for third-class medical certification.

PROTOCOL FOR HISTORY OF DIABETES MELLITUS CONTROLLED BY DIET AND EXERCISE

A blood glucose determination is not a routine part of the FAA medical evaluation for any class of medical certificate. However, the examination does include a routine urinalysis. A medical history or clinical diagnosis of diabetes mellitus may be considered previously established when the diagnosis has been or clearly could be made because of supporting laboratory findings and/or clinical signs and symptoms. When an applicant with a history of diabetes is examined for the first time, the Examiner should explain the procedures involved and assist in obtaining prior records and current special testing.

Applicants with a diagnosis of diabetes mellitus controlled by diet alone are considered eligible for all classes of medical certificates under the medical standards, provided they have no evidence of associated disqualifying cardiovascular, neurological, renal, or ophthalmological disease. Specialized examinations need not be performed unless indicated by history or clinical findings. The Examiner must document these determinations on FAA Form 8500-8.

PROTOCOL FOR HISTORY OF HUMAN IMMUNODEFICIENCY VIRUS (HIV) RELATED CONDITIONS

Persons on antiretroviral medication will be considered only if the medication is approved by the U.S. Food and Drug Administration and is used in accordance with an acceptable drug therapy protocol. Acceptable protocols are cited in Guidelines for the Use of Antiretroviral Agents in HIV-Infected Adults and Adolescents developed by the Department of Health and Human Services Panel on Clinical Practices for Treatment of HIV Infection.

Application for special issuance must include reports of examination by a physician knowledgeable in the treatment of HIV-infected persons and a medical history emphasizing symptoms and treatment referable to the immune and neurologic system. In addition, these reports must include a "viral load" determination by polymerase chain reaction (PCR), CD4+ lymphocyte count, a complete blood count, and the results of liver function tests. An assessment of cognitive function (preferably by Cogscreen or other test battery acceptable to the Federal Air Surgeon) must be submitted. Additional cognitive function tests may be required as indicated by results of the cognitive tests. At the time of initial application, viral load must not exceed 1,000 copies per milliliter of plasma, and cognitive testing must show no significant deficit(s) that would preclude the safe performance of airman duties.

Followup evaluations of applicants granted certification will include quarterly determinations of viral load by PCR, a CD4+ cell count, and the results of other laboratory and clinical tests deemed appropriate by the treating physician. These will be included in a written status report provided by the treating physician every 6 months. In addition, the results of cognitive function studies will be required at annual intervals for medical clearance or medical certification of ATCS's and first- and second-class applicants. Third-class applicants will be required to submit cognitive function studies every 2 years.

Adverse clinical findings, including significant changes in cognitive test results or an increased viral load exceeding 5,000 copies per milliliter shall constitute a basis for withdrawing medical certification.

Exceptions, if any, will be based on individual consideration by the Federal Air Surgeon.

PROTOCOL FOR EVALUATION OF HYPERTENSION

Initial: The Examiner may issue first-, second-, or third-class medical certificates to otherwise qualified airmen whose hypertension is adequately controlled with acceptable medications without significant adverse effects. In such cases, the Examiner shall:

1. Conduct an evaluation or, at the applicant's option, review the report of a current (within preceding 6 months) **cardiovascular evaluation** by the applicant's attending physician. This evaluation must include pertinent personal and family medical history, including an assessment of the risk factors for coronary heart disease, a clinical examination including at least three blood pressure readings, separated by at least 24-hours each, a resting ECG, and a report of fasting plasma glucose, cholesterol (LDL/HDL), triglycerides, potassium, and creatinine levels. A **maximal electrocardiographic exercise stress test** will be accomplished if it is indicated by history or clinical findings. Specific mention must be made of the medications used, their dosage, and the presence, absence, or history of adverse effects.

2. Summarize the results of this evaluation in **Item 60** of the transmitted application and forward the appropriate documents to the AMCD.

3. Report the results of any additional tests or evaluations that have been accomplished.

4. If appropriate, state in Item 60 on the FAA Form 8500-8 that the applicant's blood pressure is adequately controlled with acceptable medication, there are no known significant adverse effects, and no other cardiovascular, cerebrovascular, or arteriosclerotic disease is evident.

5. Defer certification if the person declines any of the recommended evaluations.

Medications:

1. **Medications** acceptable to the FAA for treatment of hypertension in airmen include all Food and Drug Administration (FDA) approved diuretics, alpha-adrenergic blocking agents, beta-adrenergic blocking agents, calcium channel blocking agents, angiotension converting enzyme (ACE inhibitors) agents, and direct vasodilators. Centrally acting agents (such as, reserpine, guanethidine, guanadrel, guanabenz, and methyldopa) are not usually acceptable to the FAA. Dosage levels should be the minimum necessary to obtain optimal clinical control and should not be modified to influence the certification decision.

2. The Examiner may submit for the Federal Air Surgeon's review requests for Authorization under the special issuance section of part 67 (**14 CFR 67.401**) in cases in which these or other usually unacceptable medications are used. Specialty evaluations are required in such cases and must provide information on why the specific drug is required. The Examiner's own recommendation should be included. The Examiner must defer issuance of a medical certificate to any applicant whose hypertension is being treated with unacceptable medications.

Followup: Followup evaluations must include a current status report describing at least the medications used and their dosages, the adequacy of blood pressure control, the presence or absence of side effects, the presence or absence of end-organ complications and the results of any appropriate tests or studies. This evaluation can be performed by the Examiner if the Examiner can attest to the accuracy of the above information.

Hypertension follow-ups are required annually for first- and second-class medical certificate applicants and at the time of renewal for third-class certificate applicants.

Duration of Certificates: The duration of the certificate will be valid until the time of normal expiration, unless otherwise specified by the FAA.

PROTOCOL FOR EVALUATION OF IMPLANTED PACEMAKER

A 2-month recovery period must elapse after the pacemaker implantation to allow for recovery and stabilization. Submit the following:

1. Copies of hospital/medical records pertaining to the requirement for the pacemaker, make of the generator and leads, model and serial number, admission/discharge summaries, operative report, and all ECG tracings.

2. Evaluation of pacemaker function to include description and documentation of underlying rate and rhythm with the pacer turned "off" or at its lowest setting (pacemaker dependency), programmed pacemaker parameters, surveillance record, and exclusion of myopotential inhibition and pacemaker induced hypotension (pacemaker syndrome), Powerpack data including beginning of life (BOL) and elective replacement indicator/end of life (ERI/EOL).

3. Readable samples of all electronic pacemaker surveillance records post surgery or over the past 6 months, or whichever is longer. It must include a sample strip with pacemaker in free running mode and unless contraindicated, a sample strip with the pacemaker in magnetic mode.

4. An assessment and statement from a physician regarding general physical and cardiac examination to include symptoms or treatment referable to the cardiovascular system; the airman's interim and current cardiac condition, functional capacity, medical history, and medications.

5. A report of current fasting blood sugar and a current blood lipid profile to include: total cholesterol, HDL, LDL, and triglycerides.

6. A current Holter monitor evaluation for at least 24-consecutive hours, to include select representative tracings.

7. A current M-mode, 2-dimensional echocardiogram with Doppler.

8. A current Maximal Graded Exercise Stress Test Requirements.

An ECG treadmill stress test should achieve 100% of predicted maximal heart rate unless medically contraindicated or prevented either by symptoms or medications. Beta blockers and calcium channel blockers (spec. diltiazem and verapamil), or digitalis preparations should be discontinued for 48 hours prior to testing (if not contraindicated) in order to obtain maximum heart rate and only with consent of the treating physician. The worksheet with blood pressure/pulse recordings at various stages, interpretive report, and actual ECG tracings must be submitted. Tracings must include a rhythm strip, a full 12-lead ECG recorded at rest (supine and standing) and during hyperventilation while standing, one or

more times during each stage of exercise, at the end of each stage, at peak exercise, and every minute during recovery for at least five minutes or until the tracings return to baseline level. Computer generated, sample-cycle ECG tracings are unacceptable in lieu of the standard tracings. If submitted alone may result in deferment until this requirement is met.

9. It is the responsibility of each applicant to provide the medical information required to determine his/her eligibility for airman medical certification. A medical release form may help in obtaining the necessary information.

All information shall be forwarded in one mailing to:

Medical Appeals Branch, AAM-313
Aerospace Medical Certification Division
Federal Aviation Administration
Post Office Box 26080
Room B-13
Oklahoma City OK 73169

OR

Medical Appeals Branch, AAM-313
Aerospace Medical Certification Division
Federal Aviation Administration
6700 S MacArthur Blvd.,
Oklahoma City OK 73125-9914

No consideration can be given for special issuance until all the required data has been received.

The use of the airman's full name and date of birth on all correspondence and reports will aid the agency in locating the proper file.

PROTOCOL FOR MUSCULOSKELETAL EVALUATION

The Examiner should defer issuance.

An applicant with a history of musculoskeletal conditions must submit the following if consideration for medical certification is desired:

- Current status report
- Functional status report
- Degree of impairment as measured by strength, range of motion, pain

NOTE: If the applicant is otherwise qualified, the FAA may issue a limited certificate. This certificate will permit the applicant to proceed with flight training until ready for a medical flight test. At that time, and at the applicant's request, the FAA (usually the AMCD) will authorize the student pilot to take a medical flight test in conjunction with the regular flight test. The medical flight test and regular private pilot flight test are conducted by an FAA inspector. This affords the student an opportunity to demonstrate the ability to control the aircraft despite the handicap. The FAA inspector prepares a written report and indicates whether there is a safety problem. A medical certificate and statement of demonstrated ability (**SODA**), without the student limitation, may be provided to the inspector for issuance to the applicant, or the inspector may be required to send the report to the FAA medical officer who authorized the test.

When prostheses are used or additional control devices are installed in an aircraft to assist the amputee, those found qualified by special certification procedures will have their certificates limited to require that the device(s) (and, if necessary, even the specific aircraft) must always be used when exercising the privileges of the airman certificate.

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PROTOCOL FOR PEPTIC ULCER

An applicant with a history of an active ulcer within the past 3-months or a bleeding ulcer within the past 6-months must provide evidence that the ulcer is healed if consideration for medical certification is desired.

Evidence of healing must be verified by a report from the attending physician that includes the following information:

- Confirmation that the applicant is free of symptoms
- Radiographic or endoscopic evidence that the ulcer has healed
- The name and dosage of medication(s) used for treatment and/or prevention, along with a statement describing side effects or removal

This information must be submitted to the AMCD. Under favorable circumstances, the FAA may issue a certificate with special requirements. For example, an applicant with a history of bleeding ulcer may be required to have the physician submit followup reports every 6 months for 1 year following initial certification.

The prophylactic use of medications including simple antacids, H-2 inhibitors or blockers, proton pump inhibitors, and/or sucralfates may not be disqualifying, if free from side effects.

An applicant with a history of gastric resection for ulcer may be favorably considered if free of sequelae.

PROTOCOL FOR RENAL TRANSPLANT

An applicant with a history of renal transplant must submit the following if consideration for medical certification is desired:

1. Hospital admission, operative report and discharge summary

2. Current status report including:

   - The etiology of the primary renal disease
   - History of hypertension or cardiac dysfunction
   - Sequela prior to transplant
   - A comment regarding rejection or graft versus host disease (GVHD)
   - Immunosuppressive therapy and side effects, if any
   - The results of the following laboratory results: CBC, BUN, creatinine, and electrolytes

PROTOCOL FOR SUBSTANCES OF DEPENDENCE/ABUSE (DRUGS - ALCOHOL)

The Examiner must defer issuance.

An applicant with a history of substances of dependence/abuse (drugs - alcohol) must submit the following if consideration for medical certification is desired:

- A current status report from a health care provider specializing in addictive disorders.
- A personnel statement attesting to the substance and amount, and date last used
- If attended a rehabilitation clinic/center, provide dates and copies of treatment plan

NOTE: The applicant may be required to submit additional information before medical disposition can be rendered.

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PROTOCOL FOR THROMBOEMBOLIC DISEASE

An applicant with a history of thromboembolic disease, ex: Deep Vein Thrombosis, Pulmonary Embolism; must submit the following if consideration for medical certification is desired:

1. Hospital admission and discharge summary

2. Current status report including:

- Detailed family history of thromboembolic disease
- Neoplastic workup, if clinically indicated
- PT/PTT
- Protein S & C
- Leiden Factor V
- Risk Factor Analysis
- Date symptoms resolved
- If still anticoagulated, submit all International Normalized Ratio (INR) from time of hospital discharge to present

PROTOCOL FOR CARDIAC VALVE REPLACEMENT

Applicants with tissue and mechanical valve replacements are considered after the following:

A 6-month recovery period shall elapse after the valve replacement to ensure recovery and stabilization. First- and second-class initial applicants are reviewed by the Federal Air Surgeon's cardiology panel.

1. Copies of hospital/medical records pertaining to the requirement for the valve to include make, model, serial number and size, admission/ discharge summaries, operative report, and pathology report.

2. A current evaluation from your attending physician regarding your use of Coumadin to confirm stability without complications, drug dose history and schedule, and International Normalized Ratio (INR) values accomplished at least monthly during the past 6-month period of observation.

3. A current report from your treating physician regarding the status of your cardiac valve replacement. This report should address your general cardiovascular condition as well as any symptoms of valve or heart failure and any related abnormal physical findings, and must reveal satisfactory recovery and cardiac function without evidence of embolic phenomena, significant arrhythmia, structural abnormality, or ischemic disease.

4. A current 24-hour Holter monitor evaluation to include select representative tracings.

5. Current M-mode, 2-dimensional echocardiogram with Doppler. Please submit the video resulting from this study.

6. A current maximal treadmill stress test. An ECG treadmill stress test should achieve 100 percent of predicted maximal heart rate unless medically contraindicated or prevented either by symptoms or medications. Beta blockers and calcium channel blockers (specifically diltiazem and verapamil), or digitalis preparations should be discontinued for 48 hours prior to testing (if not contraindicated) in order to obtain maximum heart rate and only with consent of the treating physician. The worksheet with blood pressure/pulse recordings at various stages, interpretive report, and copies of actual ECG tracings must be submitted. Tracings must include a rhythm strip, a full 12-lead ECG recorded at rest (supine and standing) and during hyperventilation while standing, one or more times during each stage of exercise, at the end of each stage, at peak exercise, and every minute during recovery for at least five minutes or until the tracings return to baseline level. Computer generated, sample-cycle ECG

tracings are unacceptable in lieu of the standard tracings and if submitted alone may result in deferment until this requirement is met.

7. If cardiac catheterization and coronary angiography have been performed, all reports and films must be submitted, if required, for review by the agency. Copies should be made of all films as a safeguard against loss.

8. Following heart valve replacement, first- and second-class certificate holders shall be followed at 6-month intervals with clinical status reports and at 12-month intervals with a CVE, standard ECG, and Doppler echocardiogram. Holter monitoring and GXT's may be required periodically if indicated clinically. For third-class certificate holders, the above followup testing will be required annually unless otherwise indicated.

9. Mechanical Heart Valve Replacement. All applicants following mechanical heart valve replacement must be anticoagulated.

10. Multiple Heart Valve Replacement. Applicants who have received multiple heart valve replacements must be deferred. However, the AMCD may consider certification of all classes of applicants who have undergone a Ross procedure (pulmonic valve transplanted to the aortic position and pulmonic valve replaced by a bioprosthesis).

It is the responsibility of each applicant to provide the medical information required to determine his/her eligibility for airman medical certification. A medical release form may help in obtaining the necessary information.

All information shall be forwarded in one mailing to:

FAA Civil Aerospace Medical Institute OR	FAA Civil Aerospace Medical Institute
Medical Appeals Branch, AAM-313	Medical Appeals Branch, AAM-313
Post Office Box 26080	6700 S MacArthur Blvd.
Oklahoma City OK 73125-9914	Oklahoma City OK 73169

No consideration can be given for special issuance until all the required data has been received.

Use of the above reference number and your full name on any reports or correspondence will aid us in locating your file.

PROTOCOL FOR VALVULOPLASTY

An applicant with a history of valvuloplasty must submit the following if consideration for medical certification is desired.

Valvuloplasty (surgical or balloon) for Mitral or Pulmonary Stenosis:

Initial:

- A 6-month period must elapse before consideration for any class medical certification
- **Cardiovascular Examination** (CVE)
- ECG
- Echocardiography and a symptom-limited GXT must show an acceptably increased exercise capacity without ischemia

Followup: Required annually.

- CVE
- Echocardiography
- ECG
- When indicated a 24-hour Holter and a GXT

Valvuloplasty (surgical or balloon) for Aortic Stenosis:

- A favorable determination is unlikely if this procedure was performed after age 16
- Same as the above initial requirements